What is claimed is:

1. MEMS apparatus comprising a base support; a planar support layer having a support surface; hinge elements coupled to said support layer and to said base support movably suspending said support layer from said base support, the hinge elements being disposed in a different plane from said support layer; and a bulk element supported on said support surface, the bulk element having an optical surface.

2. The apparatus of Claim 1, wherein the bulk element comprises a device layer having a portion forming a pedestal that connects the device layer to said support surface, said optical surface being on said device layer.

3. The apparatus of Claim 2, wherein the pedestal is sized to support the device layer a predetermined distance from the support layer.

4. The apparatus of Claim 3, wherein the pedestal is sized to position the bulk element a sufficient distance from the support layer to afford a predetermined angular movement.

5. The apparatus of Claim 2, wherein the pedestal connects to an opposite surface of the device layer from the optical surface.

6. The apparatus of Claim 2, wherein the optical surface has an area with dimensions that are of the order of outer dimensions of the base support.

7. The apparatus of Claim 2, wherein the optical surface has at least one dimension that is greater than a corresponding outer dimension of the base support.

8. The apparatus of Claim 6, wherein the support layer has dimensions which are less than the outer dimensions of the base support.

9. The apparatus of Claim 1 further comprising an actuator disposed within a cavity in the base support for causing the support layer to move about an axis defined by a hinge element.

10. The apparatus of Claim 1, wherein each of the hinge elements has a serpentine shape.

11. The apparatus of Claim 1, wherein each of the hinge elements has a U-shape.

12. The apparatus of Claim 1, wherein the optical surface of the bulk element comprises a reflective layer.

13. The apparatus of Claim 1, wherein the support layer comprises silicon, and the hinge elements are formed from thin-film material.

14. MEMS apparatus comprising a base support; a planar support layer having a support surface; hinge means for suspending said support layer relative to said base support for movement about two axes, the hinge means being disposed in a different plane from said support layer; and a bulk element comprising a device layer having an optical surface supported on said support surface.

15. The apparatus of Claim 14 further comprising a pedestal that supports the device layer on said support surface, said pedestal being sized to support the device layer a predetermined distance from the support layer.

16. The apparatus of Claim 15, wherein the pedestal is sized to position the device layer a sufficient distance from the support layer to afford a predetermined angular movement.

17. The apparatus of Claim 14 further comprising an intermediate support element disposed between the base support and the support layer, and wherein the hinge means comprises first hinge elements suspending the support layer relative to the intermediate support element, and second hinge elements suspending the intermediate support element relative to the base support.

18. The apparatus of Claim 17, wherein the intermediate support element comprises a gimbal.

19. The apparatus of Claim 14, wherein the hinge means comprises a frame having first hinge elements that suspend the frame relative to the base support for movement about a first axis and a second hinge element that suspends the support layer relative to the frame for movement about a second axis.

20. The apparatus of Claim 19, wherein the second hinge element is connected to opposite sides of the frame and is disposed within an opening in the frame.

21. The apparatus of Claim 19 further comprising a support plate connected to the second hinge and to the support layer.

22. The apparatus of Claim 19, wherein the frame comprises a unitary structure formed of thin-film material.

23. The apparatus of Claim 19, wherein the frame is dimensioned to be stiff relative to the first and second hinge elements.

24. The apparatus of Claim 14 further comprising actuators disposed within a cavity in the base support for causing the support layer to move about said two axes.

25. An optical apparatus comprising a base support and a plurality of MEMS devices configured in an array, each MEMS device comprising a device layer having an optical surface; a planar support layer supporting the device layer; and hinge means for

movably suspending said support layer relative to said base support, said hinge means being disposed in a different plane from said support layer.

26. The apparatus of Claim 25 further comprising a gimbal intermediate the support layer and the base support, and wherein the hinge means comprises a first hinge suspending the gimbal relative to the base support for movement about a first axis, and a second hinge suspending the support layer relative to the gimbal for movement about a second axis.

27. The apparatus of Claim 26, wherein the first and second hinges comprise thin-film material.

28. The apparatus of Claim 25, wherein the hinge means comprises a frame, first hinge elements suspending the frame relative to the base support, and a second hinge element disposed within an opening in the frame and extending between different portions of the frame suspending the support layer relative to the frame.

29. The apparatus of Claim 28, wherein the frame comprises a unitary thin-film structure.

30. The apparatus of Claim 28 further comprising a support plate connected to the second hinge element for supporting the support layer on the second hinge element.

31. The apparatus of Claim 25 further comprising electrodes for causing the frame to rotate relative to the base support about the first hinge elements, and for causing the support layer to rotate relative to the frame about the second hinge element.

32. The apparatus of Claim 25 further comprising a pedestal supporting the device layer a predetermined distance from the support layer to afford a preselected angular movement, and wherein the optical surface of each MEMS device is dimensioned relative to an adjacent device in said array to maximize the area of the optical surface.